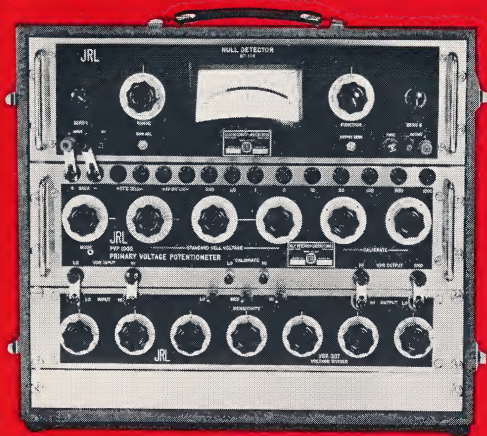




YOUR COMPANY IS
NEVER OBSOLETE
 with a

Multi-Vider^{T.M.}



JULIE RESEARCH LABORATORIES, INC.

YOU NEED A **Multi-Vider**^{*} TO

DESIGN • PRODUCE • TEST
REPAIR • CALIBRATE

any component
instrument requiring

4 or 5 place accuracy.

*The revolutionary, plug-in, multiple-use divider instrument for d-c design, production, repair, test and calibration—as basic and useful for d-c as the plug-in oscilloscope and counter are for a-c and the time-domain.

Your test equipment
must be at least
one order of magnitude
better than the accuracy
of the unit you are testing.

How can you
design • produce • test
repair • calibrate
a digital voltmeter with
an accuracy of 0.005%

?

YOU NEED A **Multi-Vider** OF COURSE!

its 6-place
accuracy
checks:

- the Zener voltage reference to 0.001 %
- the ratio networks to 0.001 %
- the precision resistors to 0.001 %
- the reference oven temperature to 0.01 °C

How can you
design • produce • test
repair • calibrate
a regulated power supply
whose stability and regulation
must be 0.01%

?

YOU NEED A **Multi-Vider** OF COURSE!

its 6-place
accuracy
checks:

- the Zener voltage reference to 0.002%
- the range network to 0.002%
- the precision resistors to 0.002%
- the reference oven temperature to 0.02°C

IN FACT, YOU NEED A **Multi-Vider** IF YOU

DESIGN • PRODUCE • TEST
REPAIR • CALIBRATE

digital voltmeters
differential voltmeters
differential amplifiers
operational amplifiers
resistors
potentiometers
regulated power supplies
diodes
Zener diodes

computers
bridges
gyros
torquers
accelerometers
synchros
shunts
meters
standard cells

calibrators
Kelvin-Varley dividers
volt-boxes
thermocouples
platinum resistance
thermometers
R-C integrators
digital-ladder networks

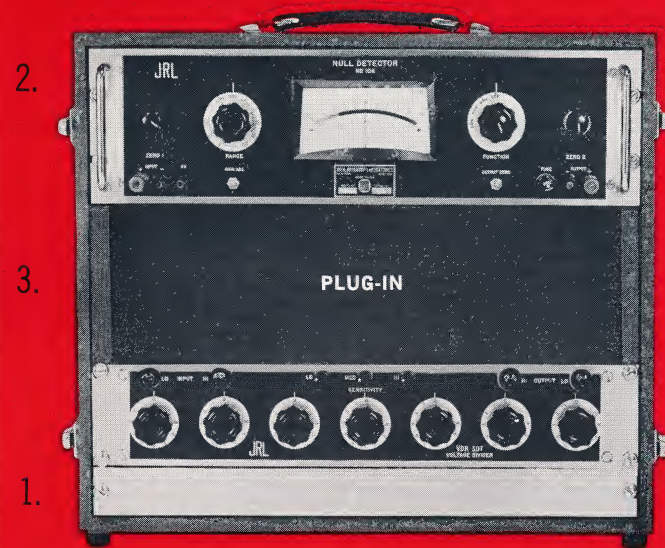
or if you need to measure:

contact resistance
insulation efficiency
resistivity of thin films
wire uniformity
lead-wire resistance
temperature
basic material properties
solid-state cryogenic
behaviour

If you use any d-c devices at accuracies of 4 or 5 places, you must be able to measure individual components to an accuracy of 5 places and in many cases, 6 places. With the d-c Multi-Vider your operators can get 6-place accuracy as easily and conveniently as reading a 6-place counter—and your Multi-Vider costs less than most 4-place accurate d-c testers.

A BASIC JULIE **Multi-Vider** CONSISTS OF:

1. **VDR-307** Kelvin-Varley voltage divider.
—The divider reading is always easy to obtain and has a resolution of 7 places with a basic accuracy to 6 places (0.0001%) Price: \$900.00
2. **ND106** Null Detector—a superior general-purpose galvanometer with a sensitivity of $\pm 0.1 \mu\text{v}$. Price: \$800.00
3. **PLUG-IN** —Julie plug-ins can be purchased for your individual requirements. They offer divider-accurate, divider-easy, divider-reliable, d-c readings from nanohms to gigohms, pico-amperes to amperes, and nanovolts to kilovolts. Optional accessories include Julie power supply plug-ins which convert your Multi-Vider to ultra-precise voltage and current supplies.



WITH ONLY TWO
PLUG-INS THE JULIE

Multi-Vider MEASURES

ALL FOUR:

RESISTANCE • RATIO
VOLTAGE • CURRENT

to an accuracy
of 6 places with
7-place sensitivity . . .

MEASURE RESISTANCE
AND RATIO



\$1,975.00

With the PRB-205C Primary Resistance Bridge plug-in, the Multi-Vider is a resistance bridge with accuracies to 0.0005% of value ± 0.1 ppm of full scale. The resistance ranges are from 1K to 10 Megohms with seven-digit resolution (100 microhms). Additional plug-ins will extend the resolution down to 10 nanohms and the range up to 100 gigohms. Using the D-C batteries which are part of the PRB-plug-in, the Multi-Vider is also a Kelvin-Varley ratio bridge with 6-place accuracy and 7-place resolution.

Voltage: With the PVP-1000C Primary Potentiometer/Volt-box plug-in, the Multi-Vider becomes a wide-range, voltage measuring unit. In the potentiometric and standard-cell comparator ranges accuracies of $0.0002\% \pm 0.1 \mu\text{V}$ are obtainable. In the extended ranges to 1100 volts d-c, accuracy of 0.0004% of value ± 0.1 ppm of full scale is obtainable.



\$1,725.00

PVP-1000 C POTENTIOMETER

Current: By using the resistance standards of the PRB plug-in, you measure current from $1 \mu\text{a}$ (1 pico-ampere resolution) to 10 ma full scale at an accuracy of better than 0.001%. Accessory Julie current shunts extend those ranges to 100 amperes.

MEASURE VOLTAGE AND CURRENT

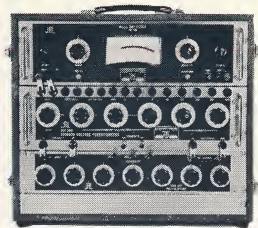
PLUG-INS

Plug-ins make your Multi-Vider infinitely adaptable. Each of the following plug-ins solves a wide-range of problems at **state-of-the-art** performance levels and **lowest cost**.

Potentiometer	
PVP-1000 C Primary Standard	\$1,725.00
or	
PVP-1001 Universal Standard/Nanovolt	1,925.00
Resistance and Temperature Bridge	
PRB-205C Primary Standard	1,975.00
PRB-205L Nanohm Extender	990.00
PRB-205H Gigohm Extender	990.00
DRRS-107 Direct Reading Ratio Set	1,480.00
DVS-106 Dialable Voltage Source	
Calibrator	2,875.00
DCS-105 Dialable Current Source	
Calibrator	2,875.00

The Multi-Vider is the newest and most useful tool created by the 12 years of Julie part-per-million Ratiometric™ system development. Like the modern plug-in oscilloscope and the modern plug-in counter, the modern plug-in Multi-Vider works for everyone, everywhere, everyday . . . keeps your company up-to-date with the accelerating requirements of the d-c art.

For a simple demonstration of the many ways in which the Multi-Vider can increase output and reduce costs for your company



Call • Wire,
or Write!



JULIE RESEARCH LABORATORIES, INC.

211 West 61st Street • New York, New York 10023

Mūl'ti-Vi'dērTM

Mūl'ti-Vi'dēr, *noun*.

1. A single new instrument that completely replaces digital voltmeters, digital ratiometers, differential voltmeters, Wheatstone bridges, Kelvin bridges, Wenner bridges, Mueller bridges, potentiometers, voltboxes, optical galvanometers, universal ratio sets, Kelvin-Varley dividers, direct-reading ratio sets, temperature regulated oil baths, mercury-stand resistance standards and all other traditional D-C tools.

2. An inexpensive D-C instrument that offers superior speed, accuracy, simplicity, reliability, convenience and flexibility.

3. A new tool that modernizes D-C research, design, test capability as the oscilloscope and electric counter did for all modern AC and time domain capability.

Ask for a simple demonstration of the many ways in which the Multi-Vider can increase output and reduce costs for your company. **Write Dept. O-10**

JULIE RESEARCH LABORATORIES, INC.

211 West 61st Street
New York, New York 10023



Your
equipment is
OBSOLETE
if you can't
measure
nanohms

In this day of space exploration requiring pin-point precision at distances of hundreds of thousands of miles, three basic tools . . . the wide-range Oscilloscope, the high-accuracy electronic Counter and the high-accuracy, wide-range DC Multi-Vider™ . . . are required to keep pace with the state of the art.

Rapid, high resolution readings of DC magnitudes . . . resistance, voltage, current and ratio . . . are the essential indicators of uniformity, quality, stability and reliability for almost every modern circuit and system component.

If your people can't read all these quantities quickly, with 6-place accuracy, their equipment is obsolete. They need the Julie Multi-Vider . . . the unique (patented) DC instrument that satisfies all their present-day requirements and creates new opportunities for your company in today's and tomorrow's technology.

The Julie Multi-Vider is a compact portable instrument weighing only 40 lbs. Like the modern oscilloscope it uses plug-ins to eliminate many or all specialized measuring test instruments. Its basic divider explores all DC magnitudes with 7 place sensitivity over nano____ to giga____ ranges. It operates easily and with the same basic accuracy and convenience as the most modern 6-place counter.

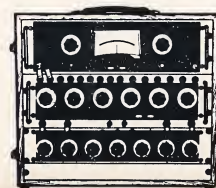
Today, the DC Multi-Vider is one of the three basic tools. You can use it anywhere . . . in the lab, on the production floor, or out in the field. It is virtually maintenance-free and calibrates itself (traceable to NBS) rapidly and completely. No specialized additional calibration equipment is required.

We have people and equipment available to put Multi-Viders to work anywhere in your plant on a free demonstration basis.

Call or Write Dept. G7

JULIE RESEARCH LABORATORIES, INC.

211 WEST 61ST STREET • NEW YORK, NEW YORK 10023



See us at WESCON
Booth 129



INFORMATION

FROM THE ENGINEERING DEPARTMENT OF

JULIE RESEARCH

LABORATORIES
INCORPORATED

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RESISTANCE BRIDGES
POTENTIOMETERS AND VOLTAGE
MEASURING DEVICES
RATIO AND VOLT-BOX SETS
RESISTANCE, CONDUCTANCE
AND RATIO STANDARDS
SYNCHRO/RESOLVER BRIDGES

NULL DETECTORS AND
AMPLIFIERS
CURRENT AND VOLTAGE,
DC OR AC SOURCES
CURRENT CALIBRATORS OR
MONITORS
POWER SUPPLIES
AUTOMATED OR PROGRAMMABLE
TEST SETS

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NETWORKS

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REPRESENTATIVES ARE
LISTED IN EEM. OUR STAFF
ENGINEERS ARE ALWAYS
READY TO ASSIST YOU
WITH SPECIAL PROBLEMS.
PLEASE FEEL FREE TO
TELEPHONE COLLECT—ASK
FOR L. M. McCULLEY.

IMPORTANT NEWS FROM JRL

Everyone active in any phase of the electronics or electrical industry can now take advantage of an exciting new "tool-of-the-trade."

Not since the invention and popularization of the Oscilloscope and high-speed Electronic Counter has an electrical tool as universal and valuable as the new DC Multivider come along.

With the Multivider, the sky is your limit in both present and future DC exploration, observation and general instrument application. The plug-in choices available today cover all DC measurements plus temperature. They will soon include AC and RF measurements and a retrofit adaptation to high-speed programmed testing, automatic self-balancing, and automatic data logging!

The enclosures show part of the story of the Multivider to date--

- The unique history of invention, documentation and proven product-performance.
- An announcement for seminars recently held at the Massachusetts Institute of Technology, Wescon, the Frankford Arsenal, and regional meetings of the Precision Measurement Association--part of a continuing program of communication to, and training for, workers in the new DC instrumentation field.
- A list of the 15 most recent Multivider developments (1966) showing you how the usefulness of this optimum divider and plug-in system continues to expand for your benefit.
- Some recent advertisements which list possible ways in which you might use the new tool at a profit. Such a list only scratches the surface of all the ideas for use that can occur to you when the instrument is operating in your own facility.

A last word. In 1936 there was a minority of capital set aside for Oscilloscopes or Electronic Counters. Most of the available money was being budgeted for moving-pen or string Oscillographs and vibrating-reed Frequency Indicators!! Certainly those farsighted individuals who first budgeted and used the vastly better, new tools easily took the lead in the race for new and better electrical products and performance. From that time on, the important budget question for leading companies became--not whether, but how many of the new oscilloscopes and counters to buy in order to maintain the best company performance and progress in design, development, repair, test, calibration and so on.

This is exactly the question of today's company-capital-budget for instruments--Not whether, but how many of the new Multivider tools to put into daily use, in order to establish and maintain the highest level of performance and progress within the company.

Our applications experts are available to help you find the optimum answer for your company. Please feel free to contact us for additional information.

YOU NEED A

Multi-ViderTM

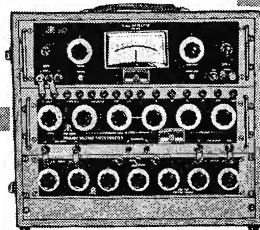
**IF YOU DESIGN
PRODUCE, TEST
REPAIR, CALIBRATE**

accelerometers
bridges
calibrators
computers
differential amplifiers
differential voltmeters
digital-ladder networks
digital voltmeters
diodes
gyros
Kelvin-Varley dividers
meters
operational amplifiers
resistance thermometers
potentiometers
R-C integrators
regulated power supplies
resistors
shunts
standard cells
synchros
thermocouples
torquers
volt-boxes
Zener diodes

OR IF YOU MEASURE:

basic material properties
contact resistance
insulation efficiency
lead-wire resistance
resistivity of thin films
solid-state cryogenic behaviour
temperature
wire uniformity

Write Dept.
H-12



JULIE RESEARCH LABORATORIES, INC.
211 West 61st Street New York, NY 10023

**Simply Check
This Postpaid
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*I am interested
in:* ▼

1. Receiving

- ☐ A Multi-Vider demonstration
- ☐ A visit from a Julie representative
- ☐ A telephone call

2. Ordering

- ☐ Regular order
- ☐ Short-term lease
- ☐ Evaluation order
- ☐ 10-day Free trial

*Please, use this part of the card
to classify your technical
interests.* ▼

- ☐ Not interested. Please remove.
- ☐ Interested in theoretical information only.
- ☐ Interested in product as well as theoretical information. (C)
- ☐ Interested in information and will probably need additional precision equipment this year. (B)

- ☐ Interested in information and will definitely be buying additional precision equipment this year. (A)
- ☐ Interested in information and will definitely be buying additional precision equipment this year, including Julie Research Laboratories products. (A+)

Please send literature as indicated below

- | | |
|---|--|
| ☐ RATIO METRIC INSTRUMENT SYSTEMS | ☐ CURRENT AND VOLTAGE, DC OR AC SOURCES |
| ☐ VOLTAGE DIVIDERS | ☐ CURRENT CALIBRATORS OR MONITORS |
| ☐ VOLTAGE REFERENCES | ☐ POWER SUPPLIES |
| ☐ RESISTANCE BRIDGES | ☐ AUTOMATED OR PROGRAMMABLE TEST SETS |
| ☐ POTENTIOMETERS AND VOLTAGE MEASURING DEVICES | ☐ AMPLIFIERS |
| ☐ RATIO AND VOLT-BOX SETS | ☐ RESISTORS |
| ☐ RESISTANCE, CONDUCTANCE AND RATIO STANDARDS | ☐ RESISTANCE STANDARDS |
| ☐ SYNCHRO/RESOLVER BRIDGES | ☐ RATIOS |
| ☐ NULL DETECTORS | ☐ NETWORKS |

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COMPANY _____

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HERE'S HOW TO PROVE ALL THE
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TO YOU

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company*

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projects*

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